Supporting California Agriculture in Protecting Air Quality

Natural Resources Conservation Service
USDA
2014 Farm Bill Conservation Programs

OVERVIEW

California is home to some of the biggest air quality challenges in the nation. Much of the state does not meet federal ambient air quality standards for one or more air pollutants. Through effective conservation planning, the Natural Resources Conservation Service (NRCS) can assist agricultural producers in identifying conservation alternatives to address resource concerns on their land that affect air quality.

CLEAN AIR ACT

The Environmental Protection Agency (EPA), which administers the Clean Air Act, establishes the National Ambient Air Quality Standards (NAAQS) for common and widespread air pollutants based on the latest science available to protect public health and welfare nationwide. EPA has set air quality standards for six common "criteria pollutants," which are ozone, particulate matter, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead.

The NAAQS are intended to represent the maximum concentration of a particular pollutant that is considered safe in the outdoor ambient air. Areas are designated as in "nonattainment," if concentrations of a criteria pollutant do not comply with the NAAQS. Such areas are subject to greater regulatory scrutiny than those in compliance (or designated as "attainment") with the NAAQS. Requirements for each nonattainment area vary, as states are required to adopt enforceable State Implementation Plans (SIPs) designed to achieve and maintain air quality by meeting the air quality standards.

OZONE AND PARTICULATE MATTER

The criteria pollutants of concern with agriculture are primarily ozone and particulate matter. Ambient or "ground level" ozone is not emitted directly into the air, but is formed in the atmosphere through a photochemical reaction between oxides of nitrogen (NOx) and volatile organic compounds (VOC) emissions in the presence of sunlight. The major sources of NOx and VOC from agricultural sources include engines powering agricultural vehicles and irrigation systems, agricultural burning, pesticide and fertilizer application, and animal feeding operations. Inhaling ozone pollution can harm health for individuals with lung disease, older adults, and those who are active outdoors. Children are at greatest risk from ambient ozone exposure since their lungs are still developing and they are more likely to be active outdoors when ozone levels are high. Ozone can also impact vegetation and ecosystems, including agricultural crops, forest lands, wildlife refuges and wilderness areas.

Particulate matter (PM) is a complex mixture of extremely small particles and liquid droplets made up of a number of components, including acids, organic chemicals, metals, smoke, and dust particles. PM may be emitted directly, such as dust from vehicles traveling on unpaved roads or smoke from agricultural burning; or formed in the atmosphere from other pollutants, such as ammonia, NOx, and VOC from engine exhaust, pesticides and fertilizers, and animal feeding operations. The particle size and toxicity are directly linked to their potential for causing health problems. The PM of greatest concern are particles measuring 10 micrometers in mean diameter or smaller, where the smallest particles are inhaled and are generally passed through the throat and nose to enter into the lungs. Depending on meteorological conditions, PM can be a local pollutant of concern, but can also be carried over long distances by wind to eventually settle on the ground and water surfaces. PM deposition contributes to making lakes and streams acidic, and damaging crops and forest lands. Fine particulates are the main cause of reduced visibility or "regional haze," especially impacting wilderness areas and national parks.






CONSERVATION PLANNING

NRCS conservationists work with farmers and ranchers to come up with scientifically-sound alternatives for accomplishing their goals and working out a timeline to implement the conservation practices in a conservation plan.

Implementation of conservation practices may be partially funded through Farm Bill programs, such as the Environmental Quality Incentives Program (EQIP). In California, having a conservation plan in advance of applying for an EQIP contract typically makes an application more competitive.

ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)

EQIP provides technical and financial assistance to agricultural producers wanting to address the air quality resource concerns in their operation. The sidebar to the right lists a few of the many conservation practices available to agricultural producers to address air quality concerns.

Under the National Air Quality Initiative (NAQI), agricultural producers may apply for financial assistance for replacing their old, uncontrolled diesel-powered agricultural mobile engines with the latest emissions Tier-level diesel engine certified by the EPA and the California Air Resources Board (ARB). Priority is targeted to those operations located within counties having significant air quality resource concerns by being designated by the EPA as nonattainment for ozone and/or particulate matter. These areas experience air pollution levels that persistently exceed the NAAQS established by the Clean Air Act.

Under the California Air Quality Initiative, financial assistance is offered for several practices that provide air quality benefits. These include repowering in-use diesel-powered irrigation systems with new electric motors or the latest emissions Tier-level diesel engine; utilizing precision spray application technologies, integrated pest management strategies, or manure injection methods for dairy crops; treating unpaved road and traffic surface areas; adopting on-field conservation tillage and residue management practices; establishing windbreaks and shelterbelts around animal feeding operations; and chipping orchard or vineyard debris instead of burning it.

HOW TO APPLY

Persons interested in participating in EQIP or any other programs should contact their local NRCS field office. Applications are taken year-round at all NRCS field offices. Eligible projects will be periodically evaluated and prioritized for funding.

Air Quality Conservation Practices Available

NRCS offers technical and financial assistance on conservation practices for protecting air quality. Here are available conservation practices for farms and ranches in California:

COMBUSTION SYSTEM IMPROVEMENT

Repowering or replacing old, uncontrolled diesel engines powering irrigation systems or off-road agricultural vehicles with new electric motors or diesel engines meeting the latest EPA and ARB Tier-level emissions certification.

DUST CONTROL ON UNPAVED ROADS & SURFACES

Controlling direct particulate matter emissions produced by vehicle and machinery traffic or wind action from unpaved roads and other surfaces by applying dust suppressants on the untreated surface.

AGRICULTURAL BURNING

Treating residual woody material that is created due to management activities or natural disturbances.

ANAEROBIC DIGESTERS

Installation of an on-farm manure digester and associated equipment for the purpose of energy production.

For more information on NRCS Farm Bill conservation programs, visit:
www.nrcs.usda.gov/wps/portal/nrcs/main/ca/programs/

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